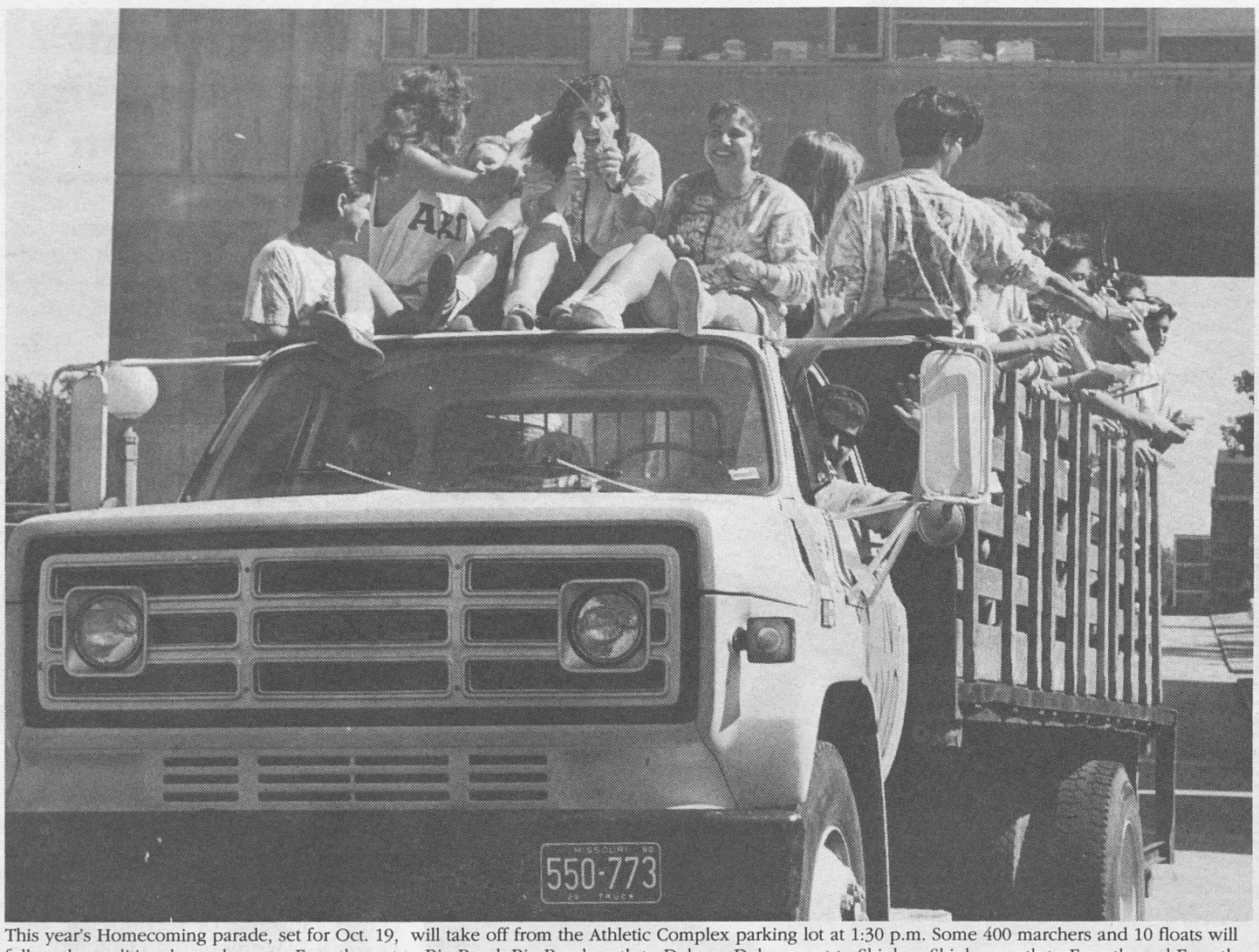
10-3-1991

Washington University Record, October 3, 1991

RECORD

Washington
WASHINGTON·UNIVERSITY·IN·ST·LOUIS

Vol. 16 No. 6/Oct. 3, 1991



This year's Homecoming parade, set for Oct. 19, will take off from the Athletic Complex parking lot at 1:30 p.m. Some 400 marchers and 10 floats will follow the traditional parade route: Forsyth west to Big Bend; Big Bend north to Delmar; Delmar east to Skinker; Skinker south to Forsyth; and Forsyth west, back to the parking lot.

Groovy days ahead

Homecoming theme brings back the '60s

Senior Ben Abella is encouraging members of the University community to take a walk on the wild side.

Abella chairs the 1991 Homecoming Steering Committee. The theme of Homecoming, slated for Oct. 13-19, is "Born to Be Wild." Members of the committee chose the theme because "Washington University is a fun place and we wanted to let people know it," says Abella, a biochemistry major from Chicago.

He says the committee's goal is "to build on the success of last year's Homecoming. In light of the football team's recent wins, Homecoming should be a really fun week. This year's Homecoming will be as successful as ever." The Homecoming game, to be held at 7 p.m. Oct. 19 in Francis Field, is between Washington and Rhodes College.

By selecting the theme, the students also wanted to highlight the 1960s — a period when many people promoted stress-free living more actively than they do now, says Abella.

From the deadpan humor of stand-up comic Steven Wright, whose Oct. 13 performance in Graham Chapel opens Homecoming Week, to the Oct. 16 Wacky Olympics competition, the potpourri of activities are designed to be everything BUT stressful.

As an allegiance to the "in" fashion of the 1960s, Tie-dye shirts will be made and sold beginning at noon Oct. 15 in Bowles Plaza. Tie-dye clothing recently has made a comeback among today's fashion-conscious individuals. Also scheduled to begin at noon Oct. 15 in the same location is a pingpong ball drop, in which pingpong balls, marked with numbers, will be dropped outside a Mallinckrodt Center window. Individuals who catch the balls with the winning numbers will be able to redeem them for prizes.

Among the other featured attractions will be a "Where the Wild Things Are" party, based on Maurice B. Sendak's classic 1963 children's book of the same name. At the party, which will be held from 9 p.m to 1 a.m. on Oct. 17, the fascinating jungle animals of Sendak's make-believe world will adorn the walls of The Gargoyle in Mallinckrodt Center. Special lighting effects will be used at the party and there also will be a 10-foot-wide video screen, where videos from the latest "hip" musicians will accompany the music played by a local disc jockey.

The week also will include the traditional Homecoming activities, such as the bonfire, to be held Oct. 16 in the South-40 Swamp, and the parade, which begins at 1:30 p.m. on Oct. 19 in the Athletic Complex parking lot. The parade lineup begins at 12:30 p.m.

The parade will consist of approximately 10 floats and 400 marchers. The parade proceeds as follows: Forsyth west to Big Bend; Big Bend north to Delmar; Delmar east to Skinker; Skinker south to Forsyth; and Forsyth west, back to the parking lot.

Chancellor William H. Danforth and his wife, Elizabeth, will ride in the parade via a two-horse carriage. Other parade participants include members of the St. Louis and the Clayton fire departments riding current and historic fire trucks, and appearances by the South County Shriner's Club and the Washington University Pep Band. Staff members from Abbott Ambulance will ride an ambulance from the 1960s.

To encourage support from the St. Louis community, members of the 1991 Homecoming Steering Committee will place ribbons and balloons along the Delmar Boulevard parade route. Balloons also will be distributed to children along the route.

Besides Abella, the members of the 1991 committee are: Jason Silberberg, treasurer; Sarah Boyce, publicity; Sabrina Charles, grand marshal; Christopher Cohen, floatbuilding; Jason Radick, parade; Lisa Davis and Amy Dix, special events; Erica Harrison, dance; and Ann Bartholomew, tailgate. Cathy Earley, coordinator of student activities, is the committee adviser.

University sponsors are Student Union, Congress of the South-40, Office of Student Activities and Residential Life.

The complete schedule follows:

• **Sunday, Oct. 13 — Comedian Steven Wright**. 8 to 10 p.m. Graham Chapel. For ticket information, call 935-5944.

• **Monday, Oct. 14 —Musical Performances**. Noon. To celebrate Homecoming, a variety of musicians will perform Monday through Thursday at Mallinckrodt Center. **Study Break**. Midnight to 1 a.m. Wohl Center and Millbrook Apartments.

• **Tuesday, Oct. 15 — Pingpong Ball Drop**. Noon. Bowles Plaza. **Tie-dye Shirtmaking**. Noon to 3 p.m. Bowles Plaza. **Study Break**. 10 p.m.-midnight. Wydown East residence hall.

• **Wednesday, Oct. 16 — Wacky Olympics Competition**. 4 to 6 p.m. South-40 Swamp. **Bonfire.** 9 to 11 p.m. South-40 Swamp.

• **Thursday, Oct. 17 — "Where the Wild Things Are" Party**. 9 p.m. to 1 a.m. The Gargoyle, Mallinckrodt Center.

• **Friday, Oct. 18 — Ice Cream Eating Contest**. 11 a.m. to 1 p.m. Bowles Plaza. **Floatbuilding**. Begins at 6 p.m. Athletic Complex Parking Lot.

• **Saturday, Oct. 19 — Parade Lineup**. 12:30 p.m. Athletic Complex parking lot. Parade begins at 1:30 p.m. at the same location. **Tailgate Party**. 4 to 6:45 p.m. Same location. **Homecoming Football Game** between Washington and Rhodes College. 7 p.m. Francis Field. **Homecoming Dance**. 9 p.m. to 1 a.m. Mudd Law Field.

For more information on Homecoming activities, call 935-5994.

NASA renames spacecraft to honor physicist Compton

NASA officials have announced that the Gamma Ray Observatory, deployed April 7, 1991, from the Space Shuttle Atlantis, will be renamed in honor of the late Arthur Holly Compton, a physicist and former chancellor of Washington University.

Compton won the 1927 Nobel Prize in physics for his 1922 discovery of the X-ray scattering effect, which is now known as the Compton Effect. He made his prize-winning discovery at Washington University, where he was Wayman Crow Professor of Physics and head of the Department of Physics from 1919 to 1923 and chancellor from 1945 to 1953.

The new, official name of the 17-ton orbiting spacecraft is the Arthur Holly Compton Gamma Ray Observatory or Compton Observatory.

Currently in an orbit at an altitude of about 280 miles above the Earth's surface, the Compton Observatory was designed to study an invisible, high-energy form of radiation known as gamma rays. Its instrumentation will be used by scientists to learn more about gamma-ray sources, such as cosmic gamma-ray bursts, solar flares, supernovae, pulsars, black holes and quasars.

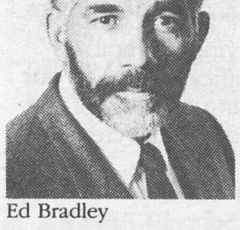
Compton's groundbreaking series of experiments on the interaction of high-energy radiation and matter demonstrated the wave/particle duality of nature. He found that when a ray of high-energy light, such as an X-ray or gamma ray, scatters off an electron, the light loses energy in the same way that

Continued on p. 2

'60 Minutes' Co-editor Bradley will deliver Assembly Series talk

CBS News correspondent Ed Bradley will speak at 11 a.m. Oct. 9 in Graham Chapel. His lecture is part of the University's Assembly Series and is free and open to the public.

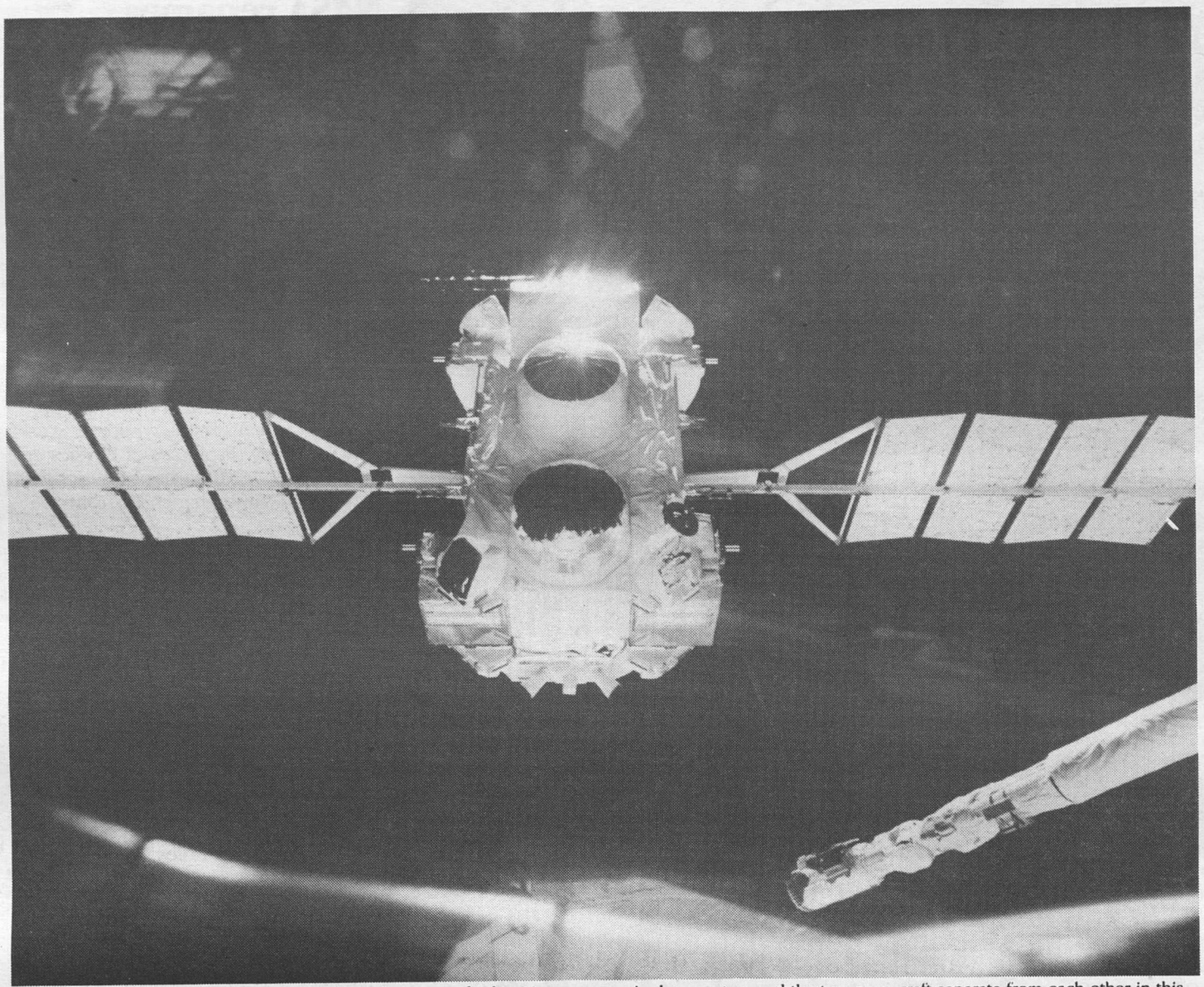
Bradley, celebrating his 10th season as co-editor of CBS' "60 Minutes," has been described by TV Guide editors as "one of the finest interviewers on television ... a sensitive surgeon whose technique sheds light instead of heat." Bradley has been a principal correspondent for "CBS Reports" since 1978. He previously had been a CBS News White House Correspondent. He also was anchor of "The CBS Sunday Night News" from 1976-1981.


Ed Bradley

Bradley has won several Emmys for "60 Minutes," including one in 1985 for "Schizophrenia," a report dealing with the often misunderstood brain disorder. He also has received numerous awards while doing "CBS Reports," including three Emmys, three Alfred I. duPont-Columbia University awards, an Overseas Press Club award and two George Foster Peabody awards. His coverage of the plight of Cambodian refugees also won a George Polk Award in Journalism.

Bradley joined CBS News 20 years ago as a stringer in the Paris bureau and was then transferred to Saigon where he remained until moving to the Washington, D.C., bureau in 1974. He was named a CBS News corre-

Continued on p. 2



The Gamma Ray Observatory is released from the grasp of Atlantis' remote manipulator system and the two spacecraft separate from each other in this scene photographed from inside the shuttle's cabin. The observatory has been named after former University physicist and Chancellor Arthur Holly Compton.

Spacecraft— *continued from p. 1*

a billiard ball does when it bounces off another ball. His findings played a key role in the development of modern physics.

In 1923, after completing his X-ray scattering experiments at Washington University, Compton joined the faculty at the University of Chicago, where he made major contributions to the understanding of cosmic rays. He organized a worldwide cooperative project that measured cosmic rays at different latitudes and elevations and demonstrated that most cosmic rays are electrically charged particles.

Interactions of cosmic rays with interstellar gas are an important source of the gamma rays that the Compton Observatory is studying. Compton's work provided significant clues to our present understanding of many of the basic physical processes that create gamma radiation.

Compton, who was born in Wooster, Ohio, on Sept. 10, 1892, returned to Washington University in 1945 to serve as chancellor until 1953. He died in 1962.

"It is most appropriate to name the Gamma Ray Observatory for Arthur Holly Compton," said Michael W. Friedlander, Ph.D., professor of physics. "The four experimental packages on the observatory are designed to detect high-energy cosmic X- and gamma rays. One of these experiments is based on the effect that Compton discovered when he was at Washington University and for which he was awarded a Nobel Prize. All are related to the cosmic rays that Compton studied during his worldwide survey."

Friedlander, along with Washington University colleagues and NASA officials, is organizing an international symposium to be held Oct. 15-17, 1992, at Washington University to mark the 100th anniversary of Compton's birth. Some 300 scientists are expected to attend the Compton centenary symposium, which will focus on results from the observatory.

The Compton Observatory is the second of four planned spacecraft in NASA's Great Observatories program, including the Hubble Space Telescope, launched in April 1990, the Advanced X-ray Astrophysics Facility and the Space Infrared Telescope Facility.

The Observatory is managed by the Goddard Space Flight Center, Greenbelt, Md., for NASA's Office of Space Science and Applications.

Eliot Trio inaugural concert scheduled

The inaugural concert of the newly formed Eliot Trio will be held at 8 p.m. Wednesday, Oct. 9, in Sheldon Concert Hall, 3648 Washington Ave.

The ensemble, which is named for William Greenleaf Eliot, founder of Washington University, features pianist Seth Carlin, professor of music; violinist Nina Bodnar, concertmaster of the St. Louis Symphony; and John Sant'Ambrogio, principal cellist of the St. Louis Symphony. The free concert will feature "Trio in C Major, K. 548" by Mozart, "Trio in E Minor, Op. 67" by Shostakovich, and "Trio in G Minor, Op. 15" by Smetana.

Carlin has performed frequently with St. Louis Symphony musicians and is well-known to area concert goers. He gave his first public performance at age nine during a radio broadcast on New York-based station WNYC, performing a work written for him.

A longtime champion of playing early music on period instruments, Carlin has performed at the early music series of Tafelmusik in Toronto, Newport Music Festival in Rhode Island, the Festival of Two Worlds in Spoleto, Italy, the Marlboro Music Festival, the Cambridge Society for Early Music in Massachusetts and in New York's "On Original Instruments" at Merkin Hall. Carlin has been performing the entire cycle of the complete Schubert fortepiano sonatas at Sheldon Hall, playing one concert per semester, and will perform the same cycle in New York City during the 1991-92 concert season.

Bodnar, a San Mateo, Calif., native, joined the symphony as concertmaster at the beginning of the 1990-91 season. After studying at Juilliard for one year, Bodnar won first prize in the Jacques Thibaud International Violin Competition. That catapulted her into a solo career in which she spent the next three years performing concerts in Europe. Upon her return to the United States, Bodnar was invited to become the concertmaster for the Santa Barbara Symphony. In addition to her orchestral performances, Bodnar also is active in chamber music performance. She performed with the Santa Fe Chamber Music Festival for five years.

Sant'Ambrogio, principal cellist with the St. Louis Symphony, has been a member of that organization since 1968. Previously he was a member of the Boston Symphony Orchestra, the Boston Trio and principal cellist of the Boston Ballet Orchestra. As a soloist, Sant'Ambrogio has performed with the Boston Pops Orchestra and several ensembles on the East Coast. He served as principal cellist at the Casals Festival in San Juan, Puerto Rico, and as first cellist at the Grand Teton Festival in Wyoming. In 1988 Sant'Ambrogio created the "Strings in the Mountains" festival in Steamboat Springs, Colo.

The concert is sponsored by the Department of Music. For more information, call 935-5581.

U.S. News study ranks University 18th in nation

Washington University is ranked 18th out of 204 national universities in U.S. News and World Report's fifth annual study of America's best colleges. The study is a category-by-category ranking of the nation's leading colleges and universities.

The new overall ranking shows a significant climb for the University — last year Washington was ranked 24th among national universities. The report appears in a special 25-page pull-out section of the Sept. 30 U.S. News.

More than 2,420 college presidents, academic deans and admissions directors were asked to select the colleges and universities they believe offer the finest undergraduate education. In addition, objective data, such as a college's ability to see its students through to graduation, was used to quantify a school's performance.

The top 25 national universities according to the U.S. News survey are: 1.) Harvard; 2.) Yale; 3.) Stanford; 4.) Princeton; 5.) California Institute of Technology; 6.) Massachusetts Institute of Technology; 7.) Duke; 8.) Dartmouth; 9.) Columbia; 10.) University of Chicago; 11.) Johns Hopkins; 12.) Cornell; 13.) University of Pennsylvania; 14.) Northwestern; 15.) Rice; 16.) University of California at Berkeley; 17.) Brown; 18.) Washington; 19.) Vanderbilt; 20.) Georgetown; 21.) University of Virginia; 22.) University of Michigan; 23.) University of California at Los Angeles; 24.) Carnegie Mellon; and 25.) University of North Carolina at Chapel Hill.

Bradley— *continued from p. 1*

spondent in 1973, and shortly after, was wounded while on assignment in Cambodia. In 1975 he volunteered to return to Indochina and covered the fall of Cambodia and Vietnam.

For more information about the lecture call 935-5285.

RECORD

Executive Editor: Susan Killenberg, 935-5254, Campus Box 1070; P72245SS at WUVMC
Editor: Deborah Parker, 935-5235, Campus Box 1070; P72245DP at WUVMC
Assistant editor: Carolyn Sanford, 935-5293, Campus Box 1070; P72245CS at WUVMC
Editor, Medical Record: Joni Westerhouse, 362-8257, Medical School Campus Box 8065; C72245JW at WUVMD
Contributing writers: Debby Aronson, Joyce Bono, Kleila Carlson, Gerry Everding, Tony Fitzpatrick, Jim Keeley and Juli Leistner
Photographers: Joe Angeles, Tom Heine, David Kilper and Herb Weitman
Record (USPS 600-430; ISSN 1043-0520), Volume 16, Number 6/Oct. 3, 1991. Published weekly during the school year, except school holidays, monthly during June, July and August, by the Office of Public Affairs, Washington University, Box 1070, One Brookings Drive, St. Louis, Mo. 63130. Second-class postage paid at St. Louis, Mo.

Address changes and corrections:

Postmaster and non-employees: Send address changes to: Record, Washington University, Box 1070, One Brookings Drive, St. Louis, Mo. 63130.
Hilltop Campus employees: Send to: Personnel Office, Washington University, Box 1184, One Brookings Drive, St. Louis, Mo. 63130.
Medical Campus employees: Send to: Payroll Office, Washington University, Box 8017, 660 S. Euclid, St. Louis, Mo. 63110.

NOTABLES

John W. Clark, Ph.D., professor of physics, spoke at the Workshop on Neural Networks: From Biology to High Energy Physics, in Elba, Italy. He was also co-director of the Workshop on Complex Dynamics in Neural Networks at the International Institute for Advanced Scientific Studies at Vietri sul Mare. He gave a special colloquium at the University of Koln, titled "Neural Networks That Do Science." Clark spoke at the Seventh International Conference on Recent Advances in Many-Body Theories in Minneapolis.

Milorad P. Dudukovic, Ph.D., professor of chemical engineering and director of the Chemical Reaction Engineering Laboratory, gave a lecture on "Bubble Columns: Some Recent Developments" at the NATO Advanced Study Institute on "Chemical Reactor Technology for Environmentally Safe Reactors and Products" in Canada. He also gave a lecture on "Computer Aided Radioactive Particle Tracking" at the Engineering Foundation Conference on Mixing in Canada.

Mark A. Franklin, Ph.D., professor of electrical engineering and computer science and director of the Computer and Communications Research Center (CCRC), and **Kenneth F. Wong**, D.Sc., senior research associate in CCRC, have been awarded a three-year grant from the National Science Foundation Division of Computer and Computation Research. The project is titled "Task Allocation and Checkpointing in Distributed Computer Systems" and has a total award amount of $430,000. The goal of the research is to develop methods which ensure reliable and efficient execution of lengthy computer programs executing in a multiple, physically distributed, computer environment.

Peter Gaspar, Ph.D., professor of chemistry, edited the book *Frontiers of Organosilicon Chemistry* with Alan Bassindale of The Open University in Milton Keynes, United Kingdom. The book contains the plenary and invited lectures of the IXth International Symposium on Organosilicon Chemistry, held at the University of Edinburgh. Gaspar's invited lecture, included in the volume, is titled "Recent Results in the Chemistry of Silylenes and Germylenes." The book is published by the Royal Society of Chemistry, of which Gaspar is a Fellow.

Mahendra Gupta, Ph.D., visiting assistant professor of accounting, received first place in the Doctoral Dissertation Competition at the American Accounting Association convention. Gupta was given the Outstanding Doctoral Dissertation Award for his dissertation on "Aggregation Issues in Product Costing."

Kerstin Hamann, doctoral candidate in the Department of Political Science, received a dissertation research grant from the Program for Cultural Cooperation between Spain's Ministry of Culture and U.S. Universities for 1991. She also received the Alice Paul Dissertation Award for the best dissertation proposal submitted by a female graduate student in political science in the United States for 1991 from the American Political Science Association.

Lorens Holm, assistant professor of architecture, is designing an annex to the Sheldon Concert Hall, in collaboration with David Davis Associates, a St. Louis architectural firm. The project involves the renovation of an existing parking garage. Phase one includes a new, rear entry atrium to the hall. Construction is scheduled to begin in February. The project represents a collaboration between Washington University faculty and the local business/professional community. The completed project is expected to encourage the development of the Grand Center area and the cultural life of the city.

Anne Hover, a senior in the School of Engineering, was chosen by Baylor College of Medicine in Houston to participate in the Baylor Graduate School's Summer Medical and Research Training Program this past summer. One of 103 undergraduates chosen from 58 colleges, Hover researched work on rehabilitation engineering.

George Johnson, Ph.D., professor of biology, attended the 24th General Assembly of the International Union of Biological Sciences as one of six U.S. delegates appointed by the National Research Council. The assembly decided to concentrate its international research efforts on how the changing global environment is affecting plant and animal life worldwide.

Roland Jordan, Ph.D., associate professor of music, and **Emma Kafalenos**, Ph.D., lecturer in comparative literature, presented a paper titled, "Listening to Music: Narratological Models" for Interdisciplinary Perspectives of Music at the University of Calgary. They also presented a paper, titled "Crossing a Bridge That Does Not Reach the Opposite Shore: Implications of Narrative and Rhythm in a Painting by Hakuin Ekaku" for the 13th Congress of the International Comparative Literature Association in Tokyo.

Peter Kulesza, a first-year graduate student at the School of Medicine, was awarded a $7,000 fellowship for graduate study by the Honor Society of Phi Kappa Phi. Kulesza was one of 50 students selected for the honor from a group of 179 of the nation's outstanding graduates.

Marvin Marcus, Ph.D., assistant professor of Japanese in the Department of Asian and Near Eastern Languages and Literatures, presented a paper titled "Shimazaki Toson and the Art of Narrative Compilation" at the 1991 meeting of the International Comparative Literature Association in Tokyo.

Jay S. Pepose, M.D., Ph.D., associate professor in the Department of Ophthalmology and Visual Sciences, was the invited speaker at the University of Illinois Eye and Ear Infirmary and delivered two talks, "Herpetic Eye Disease in the Immunocompetent and Immunocompromised" and "New Developments in the Laboratory Diagnosis of Ocular Viral and Chlamydial Infections." Pepose also was the speaker at the International Symposium on Infectious Diseases of the Eye in Muenster, Germany. The lecture was titled "Ocular Features of Sexually Transmitted Herpetic Infections."

Carlos A. Perez, M.D., professor and director of the Division of Radiation Oncology, delivered three speeches at the 11th Annual Current Approaches to Radiation Oncology, Biology and Physics held in San Francisco, Calif. The speeches were titled, "The Role of Radiation Therapy in the Treatment of Cancer of the Endometrium," "Radiation Therapy Alone in the Management of Carcinoma of the Uterine Cervix," and "What Is the Role of Radiotherapy in Patients With Locally Advanced Non-small Cell Lung Cancer?"

Mary Kersting Seaton, instructor in the Program in Occupational Therapy, has passed the 1991 Hand Therapy Certification Examination and has met the standards of competence established by the Hand Therapy Certification Commission. She is entitled to use the designation "Certified Hand Therapist."

Kerri Stecher, a senior in fashion design, won first prize in the 1991 National Association of Men's Sportswear Buyers contest. The New York-based organization makes an annual award to a Washington University fashion design student. Stecher's winning creation is a suit of a linen-look fabric with large white polka dots on a black background. The coat is color-blocked, with a red yoke, one green side and one blue side. The pants are baggy and tapered at the ankle. The prize includes a $500 award.

Martha Storandt, Ph.D., professor of psychology and neurology, has been appointed by the director of the National Institutes of Health to the search committee for a new director of the National Institute on Aging.

Mary Troy, lecturer in the Department of English, published a story, "Henrietta," in the latest edition of *American Fiction: The Best of Emerging Writers.* Another story, "Turning Colder," has been accepted for publication in next year's edition of the same anthology.

Adamina M. Vocero Villeta, Ph.D., research fellow in the Department of Genetics, received a fellowship from the National Institutes of Health for research on the Human Genome Telomere Project.

Murray Weidenbaum, Ph.D., Edward Mallinckrodt Distinguished University Professor and director of the Center for the Study of American Business, delivered a paper at an environmental conference sponsored by the Mont Pelerin Society in Big Sky, Mont., titled "The New Wave of Environmental Regulation: The Impacts on Business and Consumers." He also gave testimony to the Joint Economic Committee in Washington, D.C., on "Technology and Economic Performance: A Different View of the Federal Role."

Shuhui Yang, doctoral candidate in Chinese and comparative literature, delivered a paper titled, "Male Marginality and Female Superiority: The Problems of Gender (Yin-Yang) Identity in the *Sanyan* Stories" at the Midwestern Conference on Asian Affairs in Iowa City. He won the Percy Buchanan Prize for Best Student Paper in the area of China at the conference.

Daryl Youngman, science/engineering/STIM librarian, presented a paper on "Implementing Information Technologies in the STIM Library" at the 14th Biennial Conference of the International Association of Technological University Libraries held at the Massachusetts Institute of Technology.

Have you done something noteworthy?

Have you: Presented a paper? Won an award? Been named to a committee or elected an officer of a professional organization? The Washington University Record will help spread the good news. Contributions regarding faculty and staff scholarly or professional activities are gladly accepted and encouraged. Send a brief note with your full name, highest-earned degree, current title and department along with a description of your noteworthy activity to Notables, Campus Box 1070, or by electronic mail to p72245DP at WUVMC. Please include a phone number.

Physical facilities associate director named

Marie Roessler, former business manager of business affairs at the University, has been appointed associate director of the Department of Facilities Planning and Management. The appointment was announced by Richard A. Roloff, executive vice chancellor. The appointment became effective Aug. 1.

Roessler is filling a newly created position in the facilities area. As associate director, her responsibilities will include budgetary planning and cost control for all areas of physical facilities including administration, architectural and engineering services, contract services, custodial services, grounds, maintenance, power plant operations, and capital projects.

"I will be looking at how to improve our service to the University," said Roessler. "This will include how to improve management of our physical plant assets," she added.

Roessler has worked for Washington University for 12 years. She served as business manager for business affairs for five years and coordinated financial operations. She also served as business manager for student and university services and as budget officer for financial planning and systems. Her first position was as budget analyst for financial planning and systems.

Before coming to Washington University in August 1979, she was the assistant director and head teacher of the Webster Groves Day Care Center. She received her bachelor's degree from Webster University in 1975 and her master's in business administration in 1981 from St. Louis University, with a concentration in finance.

NEWSMAKERS

Washington University faculty and staff make news around the globe. Following is a digest of media coverage they have received during recent weeks for their scholarly activities, research and general expertise.

Abortion protests: Are they justified, noble or just plain lawless?
According to an article from the Sept. 1 issue of the *Chicago Tribune*, the nation has not seen the last of the pro-life activists. "It is part of the longing for a kind of righteousness for people who have grave doubts about the moral state of things," says Wayne D. Fields, Ph.D., associate professor of English. "What is striking is that this is a group that, by and large in the past — what they look and sound like — are ideologically opposed to civil disobedience," says Fields, who calls himself an Americanist. "I don't think you will find anything on their dossiers that suggests support for civil rights. There is a tradition of civil disobedience in this country, but these people have not in the past been part of that tradition," he said.

MEDICAL RECORD

Medical school applications jump 26 percent this year

Applications for positions in the first year class at the School of Medicine increased 26 percent this year, jumping to 4,462 from 3,544 last year.

The increase at the School of Medicine topped the national increase by more than 10 percent, according to W. Edwin Dodson, M.D., associate dean for admissions at the School of Medicine. "Considering that only approximately 120 positions were available for the 4,462 applicants, the competition for admission was indeed keen this year," Dodson says.

The incoming class of 121 students includes 33 women and 88 men, who range in age from 20 to 39 years old. The students originate from seven foreign countries and 32 states. Nine of the students are black.

The students attended 70 different U.S. colleges or universities, and 15 of the students graduated from Washington University. Other colleges and universities that had three or more students enrolling at the School of Medicine include: Harvard, University of Michigan in Ann Arbor, University of Virginia, Northwestern, University of Kansas, Duke and the University of Illinois in Urbana.

Among the incoming class, the average undergraduate cumulative grade point average is 3.71. The average total score on the Medical College Admissions Test is 67 out of a possible 90 points, which is well above the national average of 48.

Lee Robins to study substance abuse with $107,846 grant

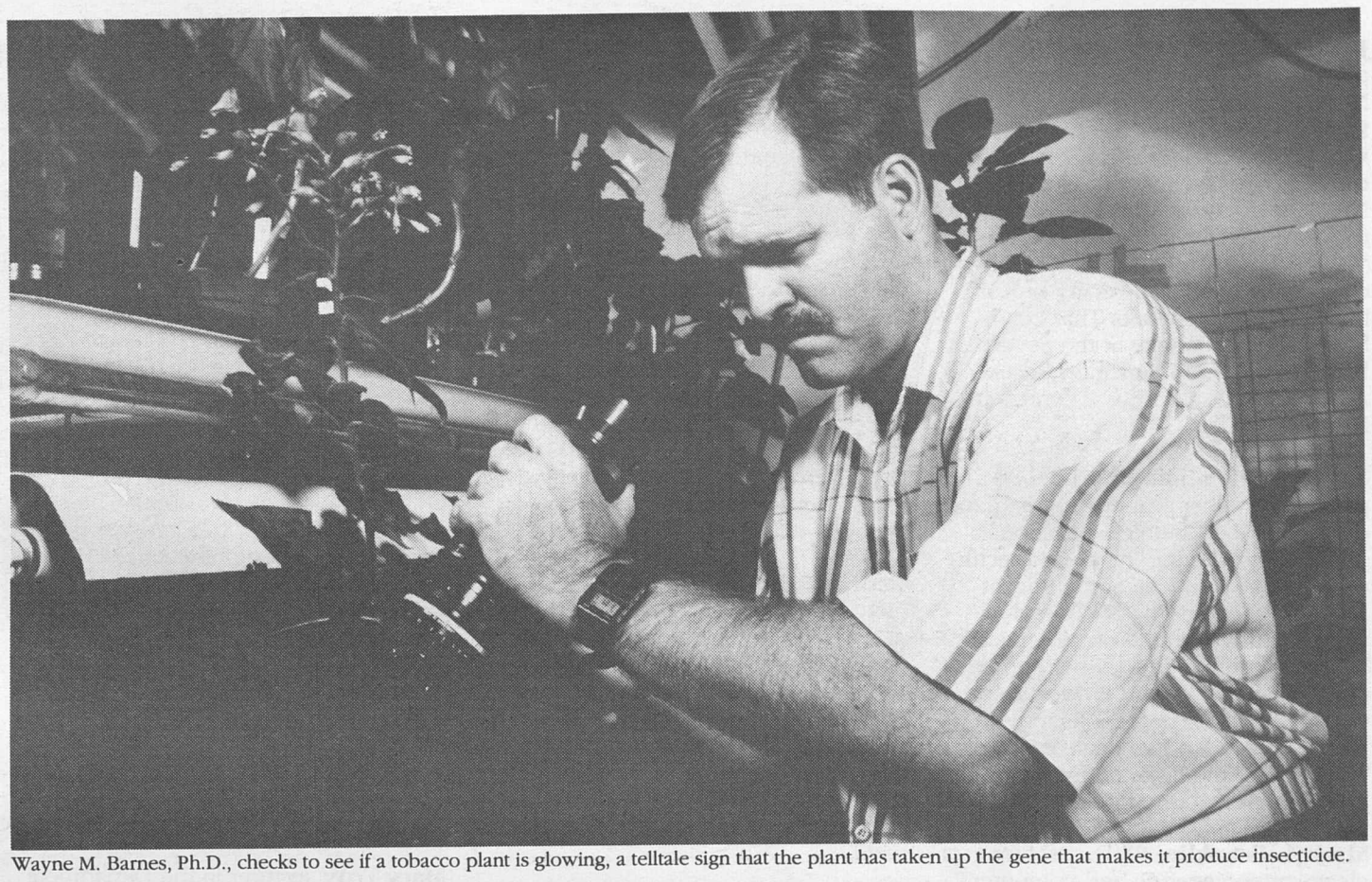
The School of Medicine has received a $107,846 grant from the Robert Wood Johnson Foundation to analyze research on substance abuse. The work will be directed by Lee N. Robins, Ph.D., psychiatric epidemiologist at the School of Medicine.

Robins, professor of social science in the Department of Psychiatry at the School of Medicine, is recognized as a leader in studies of behavioral disorders. Much of her work has centers on the effects of drug use, alcoholism and other familial disorders on child development.

Robins, also professor of social science on the Hilltop Campus, is the author of "Deviant Children Grown Up: A Sociological and Psychiatric Study of Sociopathic Personality," a longitudinal study which is considered a model for more recent research. Most recently, her research has dealt with Vietnam veterans and the epidemiology of adult psychiatric disorders. She has been particularly interested in observing the strong relationship of conduct problems in childhood and unusually early exposure to psycho-active substances, which can result in adverse outcomes in adulthood.

With this grant, she will advise the Robert Wood Johnson Foundation of gaps in existing research on drug abuse for longitudinal studies involving adolescents.

One of the nation's largest health care philanthropies, the Robert Wood Johnson Foundation has given more than $1 billion in grants to improve health care in the United States.



Wayne M. Barnes, Ph.D., checks to see if a tobacco plant is glowing, a telltale sign that the plant has taken up the gene that makes it produce insecticide.

Plants are dressed to kill in designer genes

New plant genetic engineering techniques are creating hardy crops that may soon take on the traits of the Terminator, rendering the benevolent image of the Jolly Green Giant obsolete.

Gardens of the future may be full of plants that have been genetically programmed to fight off and even kill predator insects. This new breed of plant may be more effective, and safer, than the countless thousands of tons of insecticides and pesticides farmers now use, says plant genetic engineer Wayne M. Barnes, Ph.D., of the School of Medicine.

"In the long run, perhaps the best way to defend our crops is to put genes for insecticides into plants, making them able to defend themselves from insects," says Barnes, associate professor of biochemistry and molecular biophysics. "Right now we're pouring incredible amounts of chemicals onto plants and into the land. It's overkill."

Already, tobacco plants raised in Barnes' lab use their own brand of naturally produced insecticide to fend off voracious caterpillars. Some of the plants are even clever enough to produce the toxin only in self defense, after they've been wounded by an insect.

The tobacco plants are armed with the gene for Bacillus thuringiensis (Bt), a natural bacterial insecticide that can be purchased in most garden shops. The Bt protein is completely safe to humans, but deadly to caterpillars of the order Lepidoptera, which includes moths and butterflies.

"When a caterpillar eats a leaf, this leaf that it has evolved to love is suddenly poisonous, and the insect dies," Barnes says. The toxin takes a day or two to work, he says, but the drawback is compensated for by the fact that the insecticide is completely safe to humans. "People can dust Bt on vegetables or eat it in yogurt as a protein supplement. It's that safe."

'Glowing' Success

As a plant genetic engineer, Barnes' job is to improve what nature has to offer. Even so, he admits that Mother Nature is a first-rate plant genetic engineer, and in fact has provided him with some of his most useful genetic tools.

One such tool is Agrobacterium tumefaciens, which means "tumor-forming" in Latin. The bacterium is so named because of its ability to shuttle cancer genes into tobacco plants. Barnes exploits this natural ability. "We've deleted the bacterium's tumor-forming genes and put in our Bt genes," he explains.

In order to tell that the Bt gene is in the plant, Barnes turns to nature again, this time to borrow the glow of the firefly. He splices luciferase — the gene that makes fireflies glow — into the A. tumefaciens DNA containing the Bt gene. The tobacco leaves that take up the insecticide cast an eerie greenish glow when dipped in luciferin, the other chemical needed to give fireflies their spark. "That glowing shows that the Bt gene is in the leaves," Barnes notes. "With natural tobacco, nothing happens."

Sometimes, though, the plants don't glow unless the leaf is wounded first. This could well show that production of the insecticide is "wound-inducible," meaning it is not produced until the plant is gnawed by insects, Barnes says. "This is good, because it means the gene would normally be off. The gene is only turned on after the insect begins chewing on the leaf," he explains.

Although the gene works well in tobacco plants, improving tobacco crops doesn't appeal to Barnes. "Tobacco is only a test, kind of a lab rat," he says. Instead, he would rather improve broccoli, corn or tomatoes, crops that are staples around the world. He already has sent the gene to Cornell University colleagues, who are trying to put it into broccoli. Others are working on putting it in walnuts and large trees, he adds.

In the plant world Barnes envisions, plants not only would be armed with Bt, but also someday be equipped with paralyzing toxins taken from other insects. These plants would be able to paralyze and kill insects on their own. He is working on the gene for a toxin produced by the straw itch mite, Pyemotes tritici. Like Bt, this toxin is safe to mammals but poisonous to insects.

"This project is more complex than the Bt project," Barnes explains. The mites are too small to be seen, resembling little more than a fine red powder where millions of them are congregated. Although the toxin can paralyze insects weighing hundreds of thousands times more than the straw itch mite, it can only do so if the poison passes through the victim's blood stream. "The problem is that the toxin may not make it to the insects' blood stream," Barnes says. "This is a protein, so they may just think it's food."

To overcome this difficulty, Barnes is fusing the toxin to Bt, which is stabilized in the insect's gut. This, he hopes, may prevent the toxin from being digested. "If the toxin survives the insect's gut and is active, it may paralyze cells in the gut, killing the insect."

Plants as medicine

In another project, Barnes hopes to use plant genetic engineering to halt a form of childhood blindness caused by vitamin A deficiency. In Third World countries, where food is scarce, vitamin A deficiency is common. But as Barnes points out, vitamin A is essential for sight. Without it, children go blind.

Unfortunately, feeding these Third World children a diet rich in vitamin A does not solve the problem. "When children are starving, even if they do eat plants rich in vitamin A, they're not able to assimilate it," he explains. "Their malnourished bodies don't have the enzymatic machinery they need to convert vitamin A to a usable form."

Plant genetic engineering may provide a potential cure, Barnes theorizes, by supplying people with a much-needed enzyme that splits the stored form of vitamin A. The enzyme, called carotene cleavage enzyme (CCE), is needed to cut carotene, the form of vitamin A found in plants. The human body cannot assimilate carotene, Barnes says, unless it is first broken down into retinoic acid. "Carotene is double-sized and needs to be cut in half in order for humans to assimilate it. If you could feed the children this cut-in-half-form they would be less likely to go blind," he conjectures.

Barnes proposes to transfer the gene for CCE into plants like cassava, or rice, crops that are relatively abundant in Third World countries. "If you put this enzyme in something that these people commonly eat, the enzyme would make retinoic acid available and they probably would avoid blindness," he says.

Although federal funding for plant genetic engineering research is a long way from that of human genetic studies, Barnes is optimistic that people will realize the value of the work. "With the technology of putting genes in plants, we can help people. We can create better crops and healthier insecticides, and someday possibly take genes people are deficient in and put them in the food source. It's preventive medicine."

—Jim Keeley

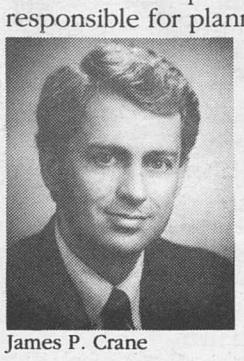
Crane appointed to clinical affairs administrative post

James P. Crane, M.D., has been named associate vice chancellor and associate dean for clinical affairs at the School of Medicine.

The appointment, effective Oct. 15, was announced by William A. Peck, M.D., vice chancellor for medical affairs and dean of the School of Medicine.

"There is no one better qualified than Dr. Crane, both professionally and personally, to undertake this crucial new activity," says Peck. "He is a highly accomplished clinician, teacher, investigator and administrator, and we are most pleased that we were able to attract him to the position."

In his new position, Crane will be responsible for planning and implementing new clinical programs for the School of Medicine. He will represent the school in planning and pursuing interactions with hospitals, managed care systems, corporations, government agencies and the lay community. He also will assist in the development of a new ambulatory care center that will be located adjacent to Barnes Hospital and the School of Medicine. The programs he develops will be geared toward improving health care in the region and to augmenting the referral of patients to the medical center institutions.



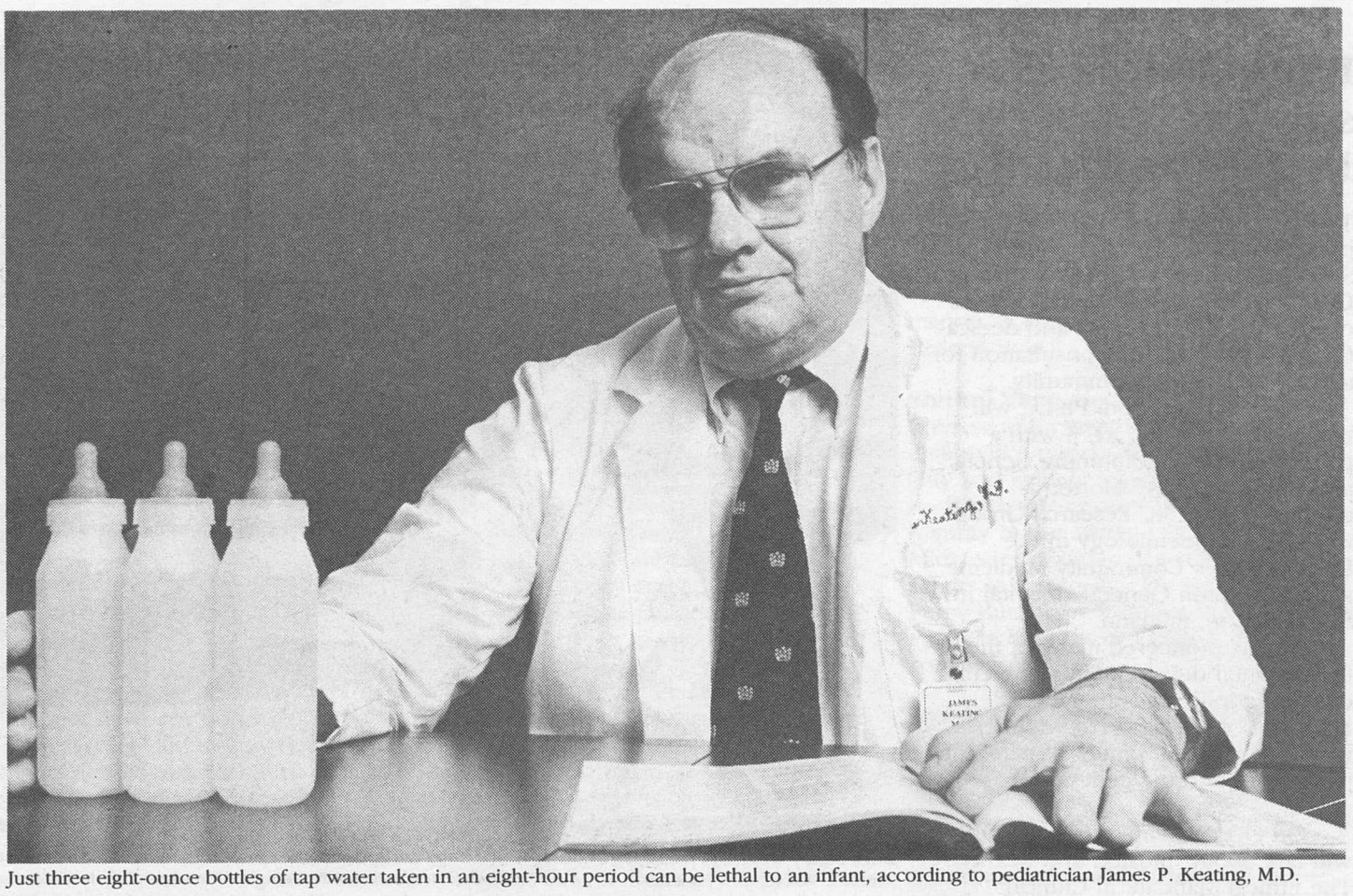
James P. Crane

A faculty member of the School of Medicine since 1973, Crane is the Virginia Lang Professor of Obstetrics and Gynecology, a professor of radiology and associate professor of medical genetics. He serves as obstetrician-in-chief at Jewish Hospital, and is a staff physician at Barnes Hospital, both sponsoring institutions of the Washington University Medical Center.

Crane, director of the Prenatal Diagnosis Program and Genetics Division in the Department of Obstetrics and Gynecology, is well known for his research on prenatal diagnosis. He currently is involved in a study with Harvard and the University of Missouri, Columbia, to evaluate whether routine ultrasound in low-risk pregnant women improves infant survival and pregnancy outcome. The study will determine the feasibility of offering ultrasound on a routine screening basis.

Crane is associate editor of the Journal of Ultrasound in Medicine and is a reviewer for six other medical journals. He is a fellow of the American College of Obstetricians and Gynecologists and is a member of numerous other professional societies, including Alpha Omega Alpha Honor Medical Society, American Society of Human Genetics, American Institute of Ultrasound in Medicine and the Society for Gynecologic Investigation.

Crane received his bachelor's and medical degrees from Indiana University. He served an internship and residency in obstetrics and gynecology at Barnes Hospital, a fellowship in maternal-fetal medicine at Washington University and one in clinical genetics at the University of Colorado School of Medicine, Denver.



Just three eight-ounce bottles of tap water taken in an eight-hour period can be lethal to an infant, according to pediatrician James P. Keating, M.D.

National epidemic

Too much water can lead to infant death

Water intoxication, an unusual condition that can cause brain damage and death in bottle-fed infants, has spread to epidemic proportions among poor infants, according to a report in the September issue of the American Journal of Diseases of Children.

Results of the 15-year study, conducted by a team of researchers at the School of Medicine and St. Louis Children's Hospital, showed that infants three to six months old, living in poverty, suffered most from the illness. Water intoxication occurs when large amounts of water are ingested quickly, flooding brain cells and causing them to swell and sometimes die. Authors of the study were James P. Keating, M.D., professor of pediatrics; Philip R. Dodge, M.D., professor of pediatrics and of neurology and neurological surgery; and Gregory J. Schears, M.D., chief resident in pediatrics.

The researchers examined 34 St. Louis children with water intoxication between 1975 and 1990, with 24 of them seen between 1988 and 1990. Symptoms included seizures, convulsions and lowered body temperatures. Fifteen infants had stopped breathing and had to be revived. Thirty-one were infants from poor homes, and all but three of these were enrolled in both the Women, Infants and Children (WIC) food supplement program and the state welfare program. Twenty-eight of the infants were six months of age or younger. Local results, combined with reports of increased cases from 12 other cities, led the team to characterize the disease as a national epidemic.

Typically, afflicted infants had been given two to three eight-ounce bottles of tap water within a two-to-eight-hour period. The reason caretakers most often cited for providing water instead of formula was that their supply of formula had been exhausted.

The study cites WIC, the federal food program for poor children, as part of the problem because it provides too little infant formula to satisfy 4- to 6-month-olds, the most likely victims of the condition. "Immediate consideration should be given to increasing the availability of formula to infants living in poverty," urge the researchers.

Most of the cases occured in the summer, leading researchers to speculate that there was an added burden placed on the families' limited resources by the interruption of the school lunch program for older siblings and other children.

Although none of the infants died after emergency treatment, Keating notes that water intoxication is life-threatening. "Without care, some of these infants would have died," he says.

The researchers recommend a prospective, national, epidemiologic study to determine the incidence and other factors responsible for oral water intoxication.

"Increased education concerning the dangers of excessive water intake in infants who are denied formula or breast-feeding is also needed, both for medical personnel and infant caregivers," researchers say. "We are convinced that oral water intoxication is a new, probably underreported, entity."

—Kleila Carlson

Physical therapy to hold free screenings

Physical therapists at the School of Medicine will celebrate National Physical Therapy Week Oct. 7-11 by offering screening clinics to faculty, staff and students.

The theme for the event, "Physical Therapy: Pro-Active Health Care," emphasizes the profession's commitment to helping people lead active and injury-free lives. The clinics will provide employees with an opportunity to discuss and evaluate their posture, flexibility and exercise needs with experts. Clinics will be held from 11:30 a.m. to 1:30 p.m, Oct. 7, in the lobby of the McDonnell Science Building, and at the same time Oct. 9, in the Designated Dining Room of Barnes Cafeteria.

School of Medicine physical therapists are members of the Program in Physical Therapy and the Irene Walter Johnson Institute of Rehabilitation (IWJ).

For more information about the free screenings, contact Susan Priem, 362-2381.

Flu vaccines to be offered this month

Vaccinations for influenza will be available for School of Medicine employees through the Student and Employee Health Service this month.

Employees will be charged $5 for the vaccine, which will be administered by nurses on the walkway of the Clinical Sciences Research Building. Vaccinations will be given from 10 a.m. to 12:30 p.m. on Oct. 16, and from 10 a.m. to 2 p.m. on Oct. 25 and 29. Payment by cash or check may be made at the time of vaccination.

Vaccination is recommended for all individuals over age 65, and for persons of any age with chronic heart or lung problems, including asthma, diabetes, kidney disease or disorders of the immune system. Health care workers who come in contact with individuals who have these disorders should also be vaccinated.

Influenza is a viral illness characterized by high fever, muscle and joint aches and dry cough lasting three to four days. The virus begins to circulate in December and flu season continues through March or early April. As the strains of virus circulating each year change, so do the components of the vaccine, making yearly vaccination necessary.

Those who are unable to attend the scheduled vaccination can make individual appointments with the health service by calling 362-3528.

MEDICAL RECORD

Biostatistics offers speaker series for its 25th anniversary

The division of biostatistics will present a Silver Jubilee Distinguished Speaker Series from October through December in celebration of 25 years of excellence in research and dedication to education and consultation for the medical school community.

Newton E. Morton, Ph.D., will begin the series on Oct. 3 with a presentation on "Combining Genetic and Physical Maps." Morton is director of the CRC Research Group in Genetic Epidemiology in the Department of Community Medicine at Southampton General Hospital in Southampton, England.

He has pioneered many of the fundamental developments in methods and applications in genetic epidemiology. His current interests include the development of mapping techniques and the genetics of cancer.

On Oct. 24, Paul Meier, Ph.D., will talk about "Illusion and Reality -- The Ethical Mandate in Clinical Trials." Meier is the Ralph and Mary Otis Isham Professor of Statistics in the Department of Statistics and Division of Biological Sciences at the University of Chicago.

He is considered on of the foremost experts on the conduct of clinical trials and has made major contributions in the field of statistical methodology.

Charles F. Sing, Ph.D., will discuss "Unraveling the Genetic Architecture of Common Human Diseases Having a Complex Etiology: A Progress Report for Coronary Artery Disease" on Oct. 2. Sing, of the Department of Human Genetics at the University of Michigan in Ann Arbor, has a special interest in the analysis of the genetic architecture of complex traits, especially cardiovascular disease.

William B. Kannel, M.D., M.P.H., professor of medicine at Boston University School of Medicine and professor of public health in the Department of Medicine, will give a talk on the "Office Assessment of Coronary Risk" on Nov. 4.

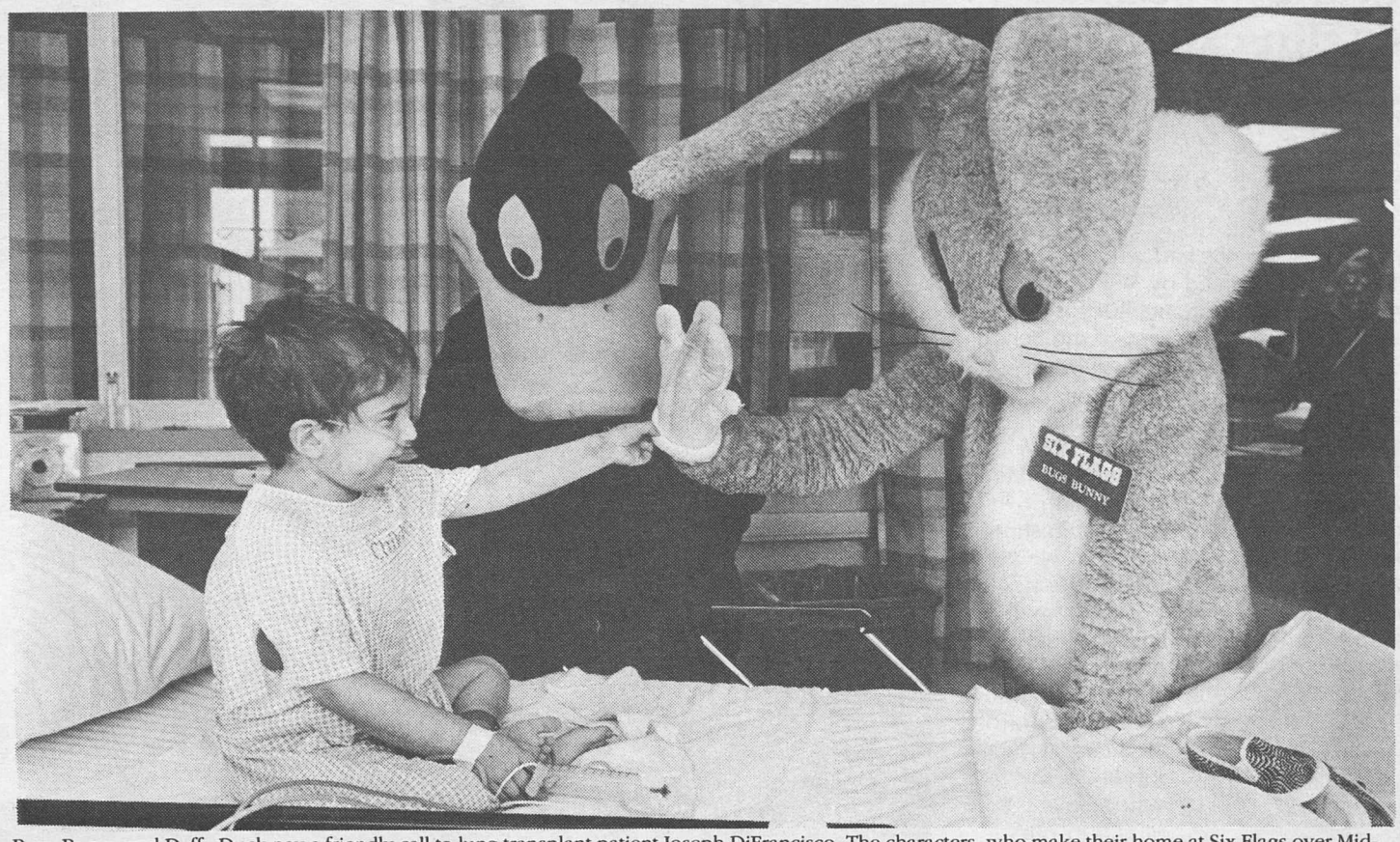
Kannel is one of the pioneers of cardiovascular epidemiology and specializes in preventive cardiology. He has been director of the Framingham Heart Study since 1966 and has been involved with the study since its inception in 1949.

The series will culminate on Dec. 4 with C.R. Rao, Ph.D., presenting the "Cross Examination of Data." Rao is one of the most well known statisticians in the world scientific community.

He also is interested in the study of theoretical statistics as well as practical applications of statistical methodology. Rao holds the Eberly chair in the Department of Statistics at Pennsylvania State University and is director of the Center for Multivariate Analysis.

The speaker series is free and open to the public. Talks will begin at 3 p.m. Morton, Meier, Sing and Kannel will speak in Cori auditorium and Rao will present in Moore auditorium.

A reception to meet the speaker will be held outside the lecture hall following the presentations, with the exception of Morton's reception, which will begin 30 minutes before his talk.



Bugs Bunny and Daffy Duck pay a friendly call to lung transplant patient Joseph DiFrancisco. The characters, who make their home at Six Flags over Mid-America visited with patients of St. Louis Children's Hospital and Washington University Medical Center in honor of the School of Medicine's centennial.

Happy 100th birthday

Centennial festivities range from symposium to day at Six Flags

Festivities for the School of Medicine's centennial get underway next week, beginning with a welcoming event from 7:30 to 9:30 p.m, Oct. 9, under the arch. A cocktail buffet will be available at that time and trams will be operating to take guests to the top of the arch.

Earlier in the day, centennial parti–cipants will have an opportunity to play in a four-person scramble at Whitmoor Country Club. The golf tournament takes place from 10:15 a.m. to 5:30 p.m., and registration is still being accepted.

An elegant and entertaining evening begins at 6 p.m., Oct. 10, and includes cocktails and dinner in the ballroom of the Hyatt Regency, located at Union Station. After dinner, guests can attend a commissioned concert at Powell Symphony Hall or an original play, written exclusively for the centennial, at Edison Theater on the University's main campus.

The last evening of the centennial will be celebrated with a dinner dance at 7 p.m., Oct. 11, at the Adam's Mark Hotel. C. Everett Koop, M.D., former Surgeon General, is the guest speaker.

The medical symposium, which includes all day scientific sessions with world-renowned speakers, is Oct. 10-11. Because of limited space, attendance is by advance ticket purchase only. The speakers include three Nobel laureates, as well as members of the prestigious National Academy of Sciences and the American Academy of Arts and Sciences. Those who haven't registered may do so by calling the centennial office at 362-9876.

Dedication of the Medical Library takes place from 9 a.m. until noon, Oct. 12, in Moore Auditorium. Daniel J. Boorstin, director emeritus of the U.S. Library of Congress and recipient of the Pulitzer Prize, will present the keynote address. Following the presentation, congratulatory messages from several distinguished guests will be sealed in a time capsule.

The centennial celebration will continue at Six Flags Over Mid-America from 10 a.m. to 8 p.m., on Sunday, Oct. 13. Admission is free to medical school students, faculty and staff. Musical entertainment will be provided in the Old Glory Amphitheater from 1 to 4 p.m., by Bob Kuban's Band, and from 4 to 7 p.m., by Sha-Boom. Parking is free.

For information, call 362-9876.

Markey grants encourage clinician/scientist collaboration

The School of Medicine has received two grants from the Lucille P. Markey Charitable Trust of Miami to support closer cooperation and interaction between basic biomedical scientists and clinicians.

The awards are from the trust's General Organizational Grant Program, and include a $4 million grant and a $3.5 million grant to be divided among four institutions.

The $4 million grant will enable the School of Medicine to launch a new educational initiative for the training of doctoral candidates and postdoctoral fellows in the study of human disease. Alan L. Schwartz, M.D., Ph.D., Alumni Professor of Pedi-atrics and professor of pharmacology, will direct the program, which will give greater clinical exposure to doc-toral candidates in biological research.

The $3.5 million grant will support an ongoing physician scientist training program that exists between Washington University, Duke University, Johns Hopkins University and the University of Pennsylvania. The program, established in 1989, changes the medical school curriculum and residency training to give medical students and residents interested in research-oriented careers more exposure to the latest biological research findings and procedures.

Previous awards primarily were targeted for innovative biomedical research programs. The most recent grants are designed to broaden the experiences of the basic scientific investigator and the practicing physician, says Louis U. Hector, chairman of the Markey Trust.

"It has become more and more difficult in recent years for a single individual to attain the status of a true physician-scientist," says Hector. "The Markey Trust has tried to judge the general organizational grant proposals on the merits of their effectiveness in contributing to the solution of this problem."

In 1987, a $12.1 million gift from the Markey Trust enabled the School of Medicine to establish the Markey Center for Research on the Molecular Biology of Human Disease. The Markey Center supports collaborative, interdisciplinary research projects that address questions about fundamental mechanisms involved in the disease process.

The Lucille P. Markey Charitable Trust, one of the nation's major private supporters of basic research, was established in 1983 to distribute the estate of the late Lucille P. Markey. The trust funds' sole activity is to support and encourage basic medical research through grants, fellowships and through the Lucille P. Markey Scholar Awards in Biomedical Science.

Lung cancer study seeks volunteers

Researchers at the School of Medicine are seeking volunteers for a study examining the effects of a new drug for the treatment of lung cancer.

Twenty patients with non-small cell lung cancer, which has spread elsewhere in the body, are needed for the study evaluating the drug navelbine. The drug, produced by Burroughs Wellcome Co., has shown positive response in European drug trials. It will be administered in pill form once a week for eight weeks.

Between 1985 and 1988 the number of persons diagnosed with lung cancer more than doubled to 36,000 from 15,000. This year, lung cancer will cause 34 percent of all cancer deaths in men and 21 percent of cancer deaths in women. Typically, patients with this form of disease do not respond well to treatment, which up to this time has consisted of a combination of drug therapies.

Joanne Mortimer, M.D., associate professor of medicine at the School of Medicine, is directing the study, which may be expanded in the future. Currently, 20 sites around the country are taking part in the research.

For more information, call Vicki Frigerio, 362-7578.

'Almost' player has flashbacks of flag football

The following first-person account was written by John Milton, M.D., a 1976 graduate of the School of Medicine.

A slice of Washington University tradition ends this year when the School of Medicine's men's flag football team "Almost" hangs up its plastic cleats.

After 19 years, injuries, moves, ineligibility and aging have taken the air out of our once robust balloon. We began in 1972 as the "Recalcitrant Medicians" for the School of Medicine class of 1976. When we came close to winning the intramural championship in 1973, we merited the name "Almost." We won the intramural competition the next two years.

In those days, the playing schedule was longer, there were no "contact" rules and the teams were quite good. We had intense rivalries with other Washington University teams from the medical, dental and law schools.

In those days, the winners of the Graduate Open division played the winners of the Undergraduate league.

After graduation, I maintained my eligibility to play on the team when I became a resident at Jewish Hospital. After my residency, I retained a shred of legitimacy by working at the Health Service once a week.

For 10 years, "Almost" was dominant. We played in both the bruising city league and the University's intramural league, and, more often than not won the championship. Through the years, we witnessed several intramural directors and did our best to nurture each succeeding crop of referees.

Although we remained talented, other teams took note that we no longer looked like ordinary graduate students. Our cheering section, once filled with girlfriends, had been replaced by wives and infants.

The denouement of our long story came in the form of "Baby Docs," a superb School of Medicine team that surfaced in the late 1980s. We beat them their first year, but felt them shaking our pedestal. They were big, strong and fast, and my hope was that we could sneak in a championship once in their final three years and regain our throne when they graduated. "Baby Docs" thrived, heedless of our power, but finally went their way.

Other teams improved, our family and work commitments interfered and winning was no longer assumed. In our scramble to recruit, we ignored some basic rules of eligibility. And while the temporal authorities did not probe deeply into the legitimacy of our team members, a higher power nudged us off our teetering post. Our last championship game in 1990 saw us lose in humiliating fashion to a very good band of School of Medicine physical therapists, who, disappointingly, were also good sports.

I won't throw away my No. 15 "Almost" jersey or my 1974 championship plaque. They are treasures. But my left knee is unstable, both my shoulders creak and I really won't miss going out there for my 20th season.

However, during the season there most likely will be several middle-aged men chatting on the sidelines and diagramming plays in the dirt.

Cancer linked to gene mix-up

The idea that cancer can arise when chromosomes inadvertently swap genetic material is well established. Thirty-one years ago, when the idea was fresh, you could count on one hand the number of diseases linked to chromosomal translocations.

Scientists have now documented 125 recurrent chromosomal mishaps that lead to cancer. And researchers studying the genetics of white blood cells are now uncovering a cache of cancer-causing genes. Their work is even shedding some light on the workings of the immune system.

Whether this proves to be cancer's equivalent of the Gold Rush of '49 is uncertain, but many of the finds are panning out quite nicely. For instance, researchers at the School of Medicine reported recently in Science that they have located a stretch of DNA that acts as a master switch for other genes. The gene HOX11 may also play an important role in a rapidly progressive form of childhood leukemia, notes Stanley J. Korsmeyer, M.D., professor of medicine at the School of Medicine.

This finding is complemented by the team's later discovery, reported in the Sept. 5 issue of Nature, that Bcl-2, a gene that acts as a "fountain of youth" for white blood cells, is connected to the most frequent form of malignant lymphoma. Korsmeyer says Bcl-2 plays a pivotal role in maintaining the body's immune defense against foreign invaders.

Mapping the genetic idiosyncrasies of specialized B and T white blood cells has proven unusually fruitful for scientists like Korsmeyer. B and T cells develop in the bone marrow and thymus respectively, and are responsible for recognizing and disposing of foreign invaders. Both types of cells are well equipped to do their job: B cells have antibodies on their surface and T cells have receptors that help them identify microbes.

These cellular sentinels remain vigilant in the face of long odds. Despite being composed of a finite number of genes, they stand guard against an almost infinite number of potential invaders. B and T cells stack the deck in their favor by shuffling the genes that code for antibodies and receptors. "If you start with only 52 cards in the deck, this shuffling mechanism allows you to make numerous different hands by selectively recombining different DNA segments," Korsmeyer explains. "This exists so you can 'see' things like moon dust that you've never been exposed to before."

But the shuffling has its price. All that moving around of genes increases the probability that some will end up in the wrong place. "It's a risk," Korsmeyer says. For example, as B and T cells mature, necessary breaks occur in their DNA. If all goes well, one segment will join another and it's beneficial. "But at times another chromosome might fly in there," Korsmeyer explains.

If another chromosome "flies in," cancer may develop years later. Researchers have now documented 125 recurrent chromosomal mishaps that lead to cancer. The key word is "recurrent," Korsmeyer says. "Time and time again the same mutations are seen in specific tumors," he notes. "For example, a child in Africa and a child in Arkansas with Burkitt's lymphoma will both have a break between chromosomes 8 and 14. But a 70-year-old farmer from southern Illinois and a lawyer from Manhattan with follicular lymphoma will each have a break between chromosomes 18 and 14."

In the case of T cell acute lymphoblastic leukemia, the disease appears to begin with the transformation of a single T cell. "This translocation is advantageous for that T cell," Korsmeyer asserts. But what is beneficial for the T cell may prove deadly for the organism. "That single cell grows so its daughter progeny are disproportionately represented, causing a leukemia or a lymphoma."

In early July, Korsmeyer and colleagues, Masahiko Hatano and Charles W. M. Roberts, reported in *Science* that a genetic mix-up creates the immortal T cells that cause T cell acute lymphoblastic leukemia (T-ALL). They say the process begins when a gene that guides liver growth is inappropriately shuffled into the DNA of a developing blood cell, creating a single abnormal white blood cell. As millions of copies of this cell are spawned, leukemia develops.

The gene HOX11 is robbed from the liver during the illegitimate union of two chromosomes, Korsmeyer says. Once out of its customary surroundings on chromosome 10, the stowaway liver gene is appended to DNA on chromosome 14, at the site coding for receptors on T cells. In its new habitat, HOX11 is free of constraints and in some way helps manufacture legions of T cells. This erroneous pairing, called a chromosomal translocation, creates conditions favorable for the development of T-ALL.

Because such rearrangements are not found in healthy cells, some speculate that they might either cause the malignancy or help in maintaining the cancer. But proving this by identifying specific fugitive genes has been a formidable task. HOX11 is one such gene, and recently Korsmeyer's group published a paper in Nature identifying another such gene.

The gene Bcl-2 increases the likelihood that a person will develop a form of cancer known as follicular B cell lymphoma. It does this by blocking the programmed death of B cells. As the lifetime of a B cell is extended, the probability that it will acquire potentially harmful genetic defects increases. Korsmeyer's lab has shown that B cells that live longer result in a high incidence of threatening lymphomas.

Korsmeyer and other scientists in this field still do not know what is sufficient to cause cancer. Which genes, if translocated, are more likely to promote cancer? As individual genes are identified, scientists are broadening the categories of cancer-causing oncogenes. In fact, many of the genes scientists are fishing out of leukemic blood cells have functions in everyday life. "They weren't just slammed into our genome to cause cancer," Korsmeyer states.

HOX11 is a member of a bold family of master genes, called homeobox genes. These genes are basically a "how to" guide for assembling the body plan. They make sure that hands become hands and feet become feet. "Like a conductor in an orchestra, homeobox genes orchestrate bold steps in development," Korsmeyer notes. These genes accomplish their orchestral feats by switching other genes on and off at precisely the right moments.

Likewise, Bcl-2 has a normal function. "Essentially, it prevents B cell suicide," Korsmeyer says. When challenged by an invading virus, the immune system responds rapidly to produce an army of short-lived B cells to dispose of the virus. Once the danger has passed, however, there is still a need to remain vigilant, should the virus ever return.

Bcl-2 is present to make sure that enough B cells survive to fend off a repeat attack. Korsmeyer and colleague, Gabriel Nunez, recently showed that Bcl-2 maintains B cell memory.

Because HOX11 and Bcl-2 are powerful genes with effects on the growth and even life and death of cells, chromosomal rearrangements involving these genes can be disastrous. But the human body is resilient, and Korsmeyer, like many scientists, believes that a single translocation alone is not enough to spawn leukemic cells.

"Most cancers are caused by two genetic abnormalities or more," Korsmeyer says. "These translocations might be happening all the time at a certain frequency, and it's the combination of bad luck that's extremely important in terms of that cell emerging as a malignancy."

— Jim Keeley

Memorial service for Mildred Trotter

A memorial service honoring Mildred Trotter, Ph.D., professor emeritus of anatomy at the School of Medicine, will be held at 5 p.m., Oct. 9 in Graham Chapel. Trotter, 92, died Aug. 23, after a long illness.

Trotter was one of the nation's foremost physical anthropologists and an eminent anatomist. During 47 years of teaching, she trained almost 4,000 students in human anatomy, including two Nobel laureates. She was a member of the School of Medicine faculty for 71 years and was the first woman to be named to a full professorship.

Two funds have been established at the School of Medicine to honor Trotter, the Mildred Trotter Scholarship Fund and the Mildred Trotter Lectureship Fund. Contributions may be sent to: Washington University/ Trotter Fund (designate Scholarship or Lectureship), Office of the Vice Chancellor and Dean, Washington University School of Medicine, Box 8106, 660 South Euclid, St. Louis, MO 63110.

CALENDAR

Oct. 3-12

LECTURES

Thursday, Oct. 3

8 a.m.-3 p.m. Division of Comparative Medicine Lecture, "Mini and Micro Laboratory Swine in Biomedical Research," with M. Michael Swindle, director, Division of Laboratory Animal Resources, and chairman, Dept. of Comparative Medicine, Medical U. of North Carolina; Linda Panepinto, consultant for Charles Rivers Laboratories and swine technical specialist; and Cathie S. Adams, sales manager, Charles Rivers Laboratories.West Pavilion Amphitheater, Barnes Hospital. For info., call 362-3700.

11 a.m. Dept. of Biochemistry and Molecular Biophysics Seminar, "Real-Time Acquisition and Analysis of Rayleigh Interference Data From the Analytical Ultracentrifuge," Thomas M. Laue, Dept. of Biochemistry, U. of New Hampshire, Durham. Biochemistry Library, Room 2918 South Bldg. For info., call 362-0261.

Noon. WU Pre-Law Students Present a Law School Information Seminar with WU School of Law alumna and attorney Victoria Vasileff. Discussion will cover law school applications with emphasis on the "new" Law School Admission Test (LSAC). Lambert Lounge, Mallinckrodt Center. For info, call 935-2983.

3 p.m. Division of Biostatistics Silver Jubilee Distinguished Speaker Series, "Combining Genetic and Physical Maps," Newton E. Morton, director, CRC Research Group in Genetic Epidemiology in the Dept. of Community Medicine at Southampton General Hospital, England. Cori Aud., McDonnell Sciences Bldg.

4 p.m. Dept. of Physics Theory Seminar, "Some QCD Radiative Corrections in eip Collisions," with Geert Jan van Oldenborgh, U. of Munich. Room 241 Compton Hall.

4 p.m. Dept. of Earth and Planetary Sciences Colloquium, "C-O-H-N Fluids: An Update," Jill Dill Pasteris, prof., WU Dept. of Earth and Planetary Sciences. 102 Wilson Hall.

4 p.m. Dept. of Chemistry Seminar, "New Coupling Catalysts: A Mild Method for the Formation of Silicon-Carbon Bonds," Patrick Lennon, Monsanto Co. Room 311 McMillen.

4 p.m. Divisional Neuroscience Seminar, "Hormonal Control of Neural Peptide Expression in Sexually Dimorphic Forebrain Circuitry," Richard B. Simerly, Oregon Regional Primate Center. Erlanger Aud., McDonnell Bldg.

8 p.m. School of Fine Arts Lecture with John Jacob, curator of the exhibition "The Missing Picture, Alternative Contemporary Photography From the Soviet Union."

Friday, Oct. 4

9:15 a.m. Pediatric Grand Rounds, "What Happens to Children With Asthma When They Grow Up," Robert C. Strunk, prof., WU Dept. of Pediatrics and director, Division of Allergy and Pulmonary Medicine, St. Louis Children's Hospital. Clopton Aud., 4950 Audubon Ave.

Noon. Dept. of Cell Biology and Physiology Seminar, "Endothelial Cells in Health and Disease," Una Ryan, director, Health Science Department, Monsanto Co. Room 423 McDonnell Medical Sciences Bldg.

Noon. Dept of Biochemistry and Molecular Biophysics Seminar, "Ca2+-Dependent Interactions in a Soluble Protein C Activation Complex," Thomas M. Laue, Dept. of Biochemistry, U. of New Hampshire, Durham. Room 2918 South Bldg. For more info., call 362-0261.

6 and 8:30 p.m. WU Association Travel Lecture Series Presents "Scotland and the Scottish Isles," with filmmakers Joe and Mary Liz Adair. Graham Chapel. Early registration advised. Cost: $4.50. For info., call 935-5212.

Saturday, Oct. 5

9 a.m. Saturday Morning Neural Science Seminar, "Neurobiology of Schizophrenia," Terrence Early, WU Dept. of Psychiatry. Erlanger Aud., McDonnell Bldg.

Monday, Oct. 7

4 p.m. Dept. of Biology Seminar, "Phylogenies and Plant Evolution," Michael Donoghue, prof., Dept. of Ecology and Evolutionary Biology, U. of Arizona. Room 322 Rebstock.

4 p.m. Second Yearly Student-sponsored Immunology Program Seminar, "Signal Transduction by the T Cell Antigen Receptor," Arthur Weiss, Ephraim P. Engleman Distinguished Professor of Rheumatology and chief, Rheumatology Division, U. of California, San Francisco School of Medicine. Steinberg Aud., Jewish Hospital. For more info., call 362-8748.

4 p.m. School of Medicine Presents the Sixteenth Annual Mildred Trotter Lecture, "Neural Activity in Visual System Development," Carla J. Shatz, prof., Dept. of Neurobiology, Stanford U. School of Medicine. Cori Aud., McDonnell Bldg. For more info., call 362-3560.

Tuesday, Oct. 8

Noon. Dept. of Biochemistry and Molecular Biophysics Seminar, "Magnetic Resonance and Mechanistic Studies of Ketosteroid Isomerase," Albert Mildvan, Dept. of Biological Chemistry, Johns Hopkins Medical School. Seminar co-sponsored by the Protein Journal Club. Room 2918 South Bldg.

4 p.m. Dept. of Chemistry Seminar, "Consequences of Magnetic Relaxation Coupling in Heterogeneous Systems," Robert Bryant, U. of Rochester. Room 458 Louderman.

Reaching out: In this scene of "Gray's Anatomy: A Medical Fable," Dr. Galen Gray (played by Robert Henke, assistant professor of fine arts) urges the young widow Becky (played by senior Shannon Warrick) to keep her baby. The play, which celebrates the School of Medicine centennial, will be held Oct. 11, 12, 18 and 19 at 8 p.m., and Oct. 13 and 20 at 2 p.m. in Edison Theatre.

Wednesday, Oct. 9

8 a.m. Dept. of Obstetrics and Gynecology Grand Rounds, "Unintended Pregnancy: The Challenges of Contraception and Compliance," Catherine Dean, WU instructor of obstetrics and gynecology. Schwarz Aud., Maternity Hospital.

10 a.m. Dept. of Chemistry Informal Lecture, "Paramagnetic Control of Magnetic Relaxation," Robert Bryant, U. of Rochester, New York. Room 311 McMillen.

11 a.m. Assembly Series Lecture with Ed Bradley, co-editor of the CBS news show "60 Minutes." Graham Chapel. For more info., call 935-5285.

4 p.m. East Asian Colloquium, "The Lure of Literary Journalism: Writers of the Late Meiji-Taisho (1906-26)," Marvin Marcus, asst. prof. of Japanese languages and literatures, WU Dept. of Asian and Near Eastern Languages and Literatures. Room 30 January Hall.

4 p.m. Dept. of Physics Lecture, "Acoustic Magnetic Resonance and Other High Frequency CW Ultrasonic Techniques: Contributions of the WU Lab for Ultrasonics," Dan I. Bolef, prof. emeritus, WU Dept. of Physics. Room 204 Crow.

6 p.m. Dept. of Germanic Languages and Literatures, the European Studies Program and The Goethe Institute of St. Louis Present a Lecture, "Is There a Wall After the Wall," Peter Schneider, author, Berlin, Germany. Women's Bldg. Lounge.

7:30 p.m. School of Fine Arts Lecture/Slide Show with artist Don Farnsworth, director of Magnolia Additions Pepper Mill, Oakland, Calif. Steinberg Hall Aud. For info., call 935-6500.

Thursday, Oct. 10

1:10 p.m. George Warren Brown School of Social Work Lecture, "Community Approaches to Working With Inner-City Youth," Rosemary Sarri, prof. of social work, U. of Michigan. Brown Hall Lounge.

4 p.m. Dept. of Earth and Planetary Sciences Colloquium, "Tectonic Contrasts Between Venus and Earth: Latest Results From Magellan," Sean C. Solomon, prof., Massachusetts Institute of Technology. Room 102 Wilson.

4 p.m. Dept. of Chemistry Seminar, "Reactions of Atomic Carbon and Related High Energy Intermediates," Philip Shevlin, Auburn U. Room 311 McMillen Lab.

Friday, Oct. 11

4 p.m. Dept. of Philosophy Colloquium and Keynote Lecture of National Graduate Student Conference, "Hume on Religion: His Views in the Natural History of Religion," Annette Baier, prof. of philosophy, U. of Pittsburgh. (Also Oct. 12 and 13 at 9 a.m.) Women's Bldg. Lounge. For info., call 935-6670.

5 p.m. Mallinckrodt Institute of Radiology "Oncology Update" Seminar with Douglas E. Johnson, prof., urology, Anderson Cancer Center, U. of Texas, and Douglas J. Marchant, prof., obstetrics and gynecology, and surgery, Tufts U. School of Medicine, Boston. The physicians will discuss the use of hormonal therapy in the treatment of breast and prostate cancer. St. Luke's Hospital West. For info., call 542-4759.

PERFORMANCES

Friday, Oct. 4

8 p.m. Edison Theatre "Stage Left" Series Presents Rachel Lampert in "Eghosts: Inventory 1991." (Also Oct. 5, same time.) Mallinckrodt Center Drama Studio, Room 208. Cost: $10 for general public; $8 for senior citizens and WU faculty and staff; and $6 for students. For more info., call 935-6543.

Friday, Oct. 11

8 p.m. Performing Arts Dept. Presents "Gray's Anatomy: A Medical Fable" by Jim Leonard Jr. (Also Oct. 12, 18 and 19, same time, and Oct. 13 and 20 at 2 p.m.) Edison Theatre. Cost: $7 for general public; $5 for senior citizens, students and WU faculty and staff. For more info., call 935-6543.

MUSIC

Sunday, Oct. 6

2:30 p.m. Dept. of Music Presents the Wind Ensemble in Concert. Saint Louis Art Museum Theatre. For more info., call 935-5581.

Wednesday, Oct. 9

8 p.m. Dept. of Music Presents The Eliot Trio. Sheldon Concert Hall, 3648 Washington Ave. For more info., call 935-5581.

EXHIBITIONS

"An American Collection: Paintings and Sculpture From the National Academy of Design." Through Nov. 3. Gallery of Art, upper gallery, Steinberg Hall. Exhibit hours: 10 a.m.-5 p.m. weekdays. For more info., call 935-5490.

"School of Fine Arts Prints." Through Oct. 13. Bixby Gallery, Bixby Hall. Exhibit hours: 10 a.m.-4 p.m. weekdays; 1-5 p.m. weekends.

"Bibliomania: A Passion for Books." Through Oct. 18. Special Collections, Olin Library, Level 5. Exhibit hours: 8:30 a.m.-5 p.m. weekdays. For more info., call 935-5487.

FILMS

Thursday, Oct. 3

7 and 9 p.m. Filmboard Foreign Series Presents "Big Deal on Madonna Street," an Italian film. 100 Brown Hall. $3.

Friday, Oct. 4

8 p.m. and midnight. Filmboard Feature Series Presents "The Philadelphia Story." (Also Oct. 5 at 10 p.m. and Oct. 6 at 7 p.m.) Room 100 Brown Hall. $3.

10 p.m. Filmboard Feature Series Presents "The Lady Eve." (Also Oct. 5 at 8 p.m. and midnight and Oct. 6 at 9 p.m.) Room 100 Brown Hall. $3.

Monday Oct. 7

7 and 9 p.m. Filmboard Classic Series Presents "Laura." (Also Oct. 8, same times.) Room 100 Brown Hall. $3.

Wednesday, Oct. 9

7 and 9 p.m. Filmboard Foreign Series Presents "Zero for Conduct," a French film. (Also Oct. 10, same times.) 100 Brown Hall. $3.

Friday, Oct. 11

6 and 9 p.m. Filmboard Feature Series Presents "A Clockwork Orange." (Also Oct. 12, same times, and Oct. 13 at 6:30 p.m.) Room 100 Brown Hall. $3.

Midnight. Filmboard Midnight Series Presents "If." (Also Oct. 12, same time, and Oct. 13 at 9:30 p.m.) Room 100 Brown Hall. $3.

SPORTS

Friday, Oct. 4

3:30 p.m. Women's Tennis. WU vs. St. Ambrose College. Tao Tennis Center.

Sunday, Oct. 6

Noon. Women's Soccer. WU vs. Trinity U. Francis Field.

Thursday, Oct. 10

4 p.m. Women's Soccer. WU vs. Maryville College. Francis Field.

Friday, Oct. 11

4 p.m. Volleyball. Round Robin [Upper Iowa, Central College, Illinois Wesleyan, Rhodes, WU]. (Also 9 a.m. Oct. 12.) Field House.

Saturday, Oct. 12

11 a.m. Men's Soccer. WU vs. U. of Chicago. Francis Field.

11 a.m. Men and Women's Cross Country. WU/Army ROTC Invitational. Bushyhead Track.

1 p.m. Women's Soccer. WU vs. U. of Chicago. Francis Field.

7 p.m. Football. WU vs. Central Methodist College. Francis Field.

MISCELLANY

Wednesday, Oct. 9

8 a.m. AIDS Clinical Trials Unit Presents a Symposium, "Primary Care of HIV Disease." (Registration: 7:15 a.m.) Ritz-Carlton Hotel, Clayton. For cost info, call 362-2418.

Friday, Oct. 11

4-6 p.m. Dept. of Philosophy's National Graduate Student Conference. (Continues Oct. 12, 9 a.m.-5 p.m.; Oct. 13, 9 a.m.-1 p.m.) Women's Bldg. Lounge. For info., call 935-6670.

Calendar Deadline

The deadline to submit items for the Oct. 10-19 calendar of the Record is Oct. 4. Items must be typed and state time, date, place, nature of event, sponsor and admission cost. Incomplete items will not be printed. If available, include speaker's name and identification and the title of the event; also include your name and telephone number. Send items to Deborah Parker, calendar editor, Box 1070, or by electronic mail to p72245DP at WUVMC.